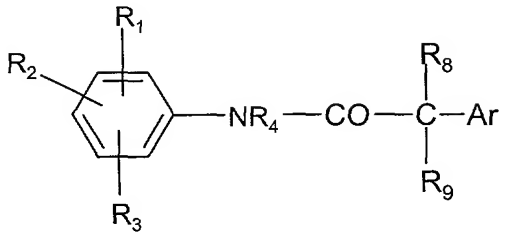
What is claimed is:

1. A carboxylic acid amide of the formula



(I),

wherein:

R_1 denotes a C_{3-7}-cycloalkyl-carbonyl group wherein

the methylene group in the 3 or 4 position in a C_{5-7}-cycloalkyl-carbonyl group may be replaced by an -NH group wherein

the hydrogen atom of the -NH group may be replaced by a C_{1-3}-alkyl, C_{1-3}-alkyl-carbonyl, phenylcarbonyl or phenylsulphonyl group,

a C_{1-6}-alkylcarbonyl group optionally terminally substituted in the alkyl moiety by an amino, C_{1-3}-alkylamino or di-(C_{1-3}-alkyl)-amino group,

a group of formula R_fR_gN-$(CH_2)_m$-(R_h)N-CO wherein

R_f, R_g and R_h independently of one another each denote a hydrogen atom or a C_{1-3}-alkyl group and

m denotes one of the numbers 2, 3, 4, 5 or 6,

a phenylcarbonyl, naphthylcarbonyl or heteroarylcarbonyl group,

a C_{1-3}-alkyl group monosubstituted by a hydroxy group or terminally disubstituted by a phenyl and a hydroxy group wherein

the phenyl substituent may be substituted by an amidino group optionally substituted by one or two C_{1-3}-alkyl groups, by a fluorine, chlorine or bromine atom, by a trifluoromethyl, C_{1-3}-alkyl or C_{1-3}-alkoxy group,

a 4- to 7-membered cycloalkyleneimino-carbonyl or cycloalkyleneimino-sulphonyl group substituted by an amino-C_{1-3}-alkyl, C_{1-3}-alkylamino-C_{1-3}-alkyl, di-(C_{1-3}-alkyl)-amino-C_{1-3}-alkyl, aminocarbonyl, C_{1-3}-alkylamino-carbonyl or di-(C_{1-3}-alkyl)-aminocarbonyl group,

a C_{3-7}-cycloalkylamino group which is substituted at the nitrogen atom by a C_{1-3}-alkyl-amino-C_{1-3}-alkyl or di-(C_{1-3}-alkyl)amino-C_{1-3}-alkyl group,

or, if R_2 denotes a trifluoromethyl group and/or R_5 denotes an amino-C_{1-3}-alkyl, C_{1-3}-alkylamino-C_{1-3}-alkyl or di-(C_{1-3}-alkyl)amino-C_{1-3}-alkyl group and/or R_6 denotes a carboxy-C_{1-3}-alkoxy or C_{1-4}-alkoxy-carbonyl-C_{1-3}-alkoxy group and/or at least one of the groups R_8 or R_9 assumes a meaning other than the hydrogen atom, an unsubstituted 4- to 7-membered cycloalkyleneimino-carbonyl or cycloalkyleneimino-sulphonyl group, a C_{3-7}-cycloalkylamino or N-(C_{1-3}-alkyl)-C_{3-7}-cycloalkylamino group,

R_2 denotes a hydrogen, fluorine, chlorine or bromine atom, a C_{1-3}-alkyl group wherein the hydrogen atoms may be wholly or partly replaced by fluorine atoms, a hydroxy or C_{1-3}-alkoxy group,

R_3 denotes a hydrogen atom or a C_{1-3}-alkyl group,
R_4 denotes a hydrogen atom or a C_{1-3}-alkyl group optionally substituted by a carboxy group or a group which may be converted into a carboxy group in vivo,

Ar denotes a phenyl or naphthyl group substituted by the groups R_5, R_6 and R_7, while

R_5 denotes a cyano group, an amidino group optionally substituted by one or two C_{1-3}-alkyl groups, an amino-C_{1-3}-alkyl, C_{1-3}-alkylamino-C_{1-3}-alkyl or di-(C_{1-3}-alkyl)amino-C_{1-3}-alkyl group,

R_6 denotes a hydrogen, fluorine, chlorine or bromine atom, a trifluoromethyl, C_{1-3}-alkyl, hydroxy, hydroxy-C_{1-3}-alkyl, C_{1-3}-alkoxy, C_{1-3}-alkoxy-C_{1-3}-alkyl, carboxy, carboxy-C_{1-3}-alkyl, carboxy-C_{1-3}-alkoxy, C_{1-4}-alkoxy-carbonyl-C_{1-3}-alkoxy, phenyl-C_{1-3}-alkoxy, amino, C_{1-3}-alkylamino or di-(C_{1-3}-alkyl)amino group and

R_7 denotes a hydrogen, fluorine, chlorine or bromine atom or a C_{1-3}-alkyl group,

or a thienylene, thiazolylene, pyridinylene, pyrimidinylene, pyrazinylene or pyridazinylene group optionally substituted in the carbon skeleton by a C_{1-3}-alkyl group,

R_8 and R_9, which may be identical or different, each denote a hydrogen atom, a C_{1-3}-alkyl group optionally substituted by a phenyl or heteroaryl group or an amino group optionally substituted by one or two C_{1-3}-alkyl or C_{1-3}-alkyl-carbonyl groups,
while the term heteroaryl group mentioned above denotes a 5-membered heteroaryl group bound via a carbon or nitrogen atom which contains

an imino group optionally substituted by a C_{1-4}-alkyl or C_{1-4}-alkyl-carbonyl group, an oxygen or sulphur atom,

an imino group optionally substituted by a C_{1-4}-alkyl group or an oxygen or sulphur atom and additionally a nitrogen atom,

an imino group optionally substituted by a C_{1-4}-alkyl group and two nitrogen atoms or

an oxygen or sulphur atom and two nitrogen atoms,

or a 6-membered heteroaryl group which contains one or two nitrogen atoms,

while a phenyl ring may be fused to the abovementioned 5- or 6-membered heteroaryl groups via two adjacent carbon atoms and the bicyclic heteroaryl groups thus formed may be bound via the heteroaromatic or carbocyclic moiety,
and the unsubstituted or monosubstituted phenyl and naphthyl groups mentioned in the definition of the abovementioned groups, or the unsubstituted or monosubstituted phenyl and naphthyl groups contained in these groups, as well as the abovementioned heteroaryl groups may additionally be substituted at a carbon atom in each case by a fluorine, chlorine or bromine atom, by a trifluoromethyl, C_{1-3}-alkyl,
C_{1-3}-alkoxy or C_{1-3}-alkoxy-carbonyl group, unless otherwise stated,

the carboxy groups mentioned in the definition of the abovementioned groups may be replaced by a group which may be converted *in vivo* into a carboxy group or by a group which is negatively charged under physiological conditions, and

the amino and imino groups mentioned in the definition of the abovementioned groups may be substituted by a group which can be cleaved *in vivo*,

and the compounds

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-chloro-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-sulphonyl)-phenyl]-acetamide,

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide and

2-(5-carbamidoyl-2-hydroxy-phenyl)-N-[3-methoxy-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

or a salt thereof.

2. A carboxylic acid amide of the formula I according to claim 1, wherein:

R_1 denotes a C_{5-7}-cycloalkyl-carbonyl group wherein the methylene group in the 3 or 4 position is replaced by an -NH group wherein

the hydrogen atom may be replaced by a C_{1-3}-alkyl, C_{1-3}-alkyl-carbonyl or phenyl-carbonyl group,

a C_{1-3}-alkyl-carbonyl group optionally terminally substituted in the alkyl moiety by a C_{1-3}-alkylamino or di-(C_{1-3}-alkyl)-amino group,

a group of formula R_fR_gN-$(CH_2)_m$-(R_h)N-CO, wherein

R_f, R_g and R_h independently of one another each denote a hydrogen atom or a C_{1-3}-alkyl group and
m denotes one of the numbers 2, 3 or 4,

a phenylcarbonyl or heteroarylcarbonyl group,

while the heteroaryl moiety contains a 6-membered heteroaryl group which contains one or two nitrogen atoms and to which a phenyl ring may be fused via two adjacent carbon atoms, while the bicyclic heteroaryl groups thus formed may be bound via the heteroaromatic or carbocyclic moiety, e.g. a 2-pyridyl, 3-pyridyl, 4-pyridyl, pyrazinyl, pyrimidinyl, pyridazinyl, quinolinyl, isoquinolinyl, quinoxalinyl or quinazolinyl group,

a C_{1-3}-alkyl group monosubstituted by a hydroxy group or terminally disubstituted by a phenyl group and a hydroxy group wherein

the phenyl substituent may be substituted by an amidino group optionally substituted by one or two C_{1-3}-alkyl groups, by a fluorine, chlorine or bromine atom, by a trifluoromethyl, C_{1-3}-alkyl or C_{1-3}-alkoxy group,

a 4- to 7-membered cycloalkyleneimino-carbonyl group substituted by an amino-C_{1-3}-alkyl, C_{1-3}-alkylamino-C_{1-3}-alkyl, di-(C_{1-3}-alkyl)-amino-C_{1-3}-alkyl, C_{1-4}-alkoxy-carbonyl-amino-C_{1-3}-alkyl, aminocarbonyl, C_{1-3}-alkylamino-carbonyl or di-(C_{1-3}-alkyl)-aminocarbonyl group,

a C_{5-7}-cycloalkylamino group which is substituted at the nitrogen atom by a C_{1-3}-alkyl-amino-C_{1-3}-alkyl or di-(C_{1-3}-alkyl)amino-C_{1-3}-alkyl group,

or, if R_2 denotes a trifluoromethyl group and/or R_5 denotes an amino-C_{1-3}-alkyl or C_{1-3}-alkylamino-C_{1-3}-alkyl group and/or R_6 denotes a carboxy-C_{1-3}-alkoxy or C_{1-4}-alkoxy-carbonyl-C_{1-3}-alkoxy group and/or at least one of the groups R_8 or R_9 assumes a meaning other than the hydrogen atom, an unsubstituted 4- to 7-membered cycloalkyleneiminocarbonyl group, a C_{5-7}-cycloalkylamino or N-(C_{1-3}-alkyl)-C_{5-7}-cycloalkylamino group,

R_2 denotes a hydrogen, fluorine, chlorine or bromine atom, a C_{1-3}-alkyl, trifluoromethyl or C_{1-3}-alkoxy group,

R_3 denotes a hydrogen atom or a C_{1-3}-alkyl group,

R_4 denotes a hydrogen atom or a C_{1-3}-alkyl group,

Ar denotes a phenyl group substituted by the groups R_5 and R_6 wherein

R_5 denotes a cyano group, an amidino group optionally substituted by one or two C_{1-3}-alkyl groups, an amino-C_{1-3}-alkyl or C_{1-3}-alkylamino-C_{1-3}-alkyl group and

R_6 denotes a hydrogen, fluorine, chlorine or bromine atom, a trifluoromethyl, C_{1-3}-alkyl, hydroxy, C_{1-3}-alkoxy, carboxy-C_{1-3}-alkoxy or C_{1-4}-alkoxy-carbonyl-C_{1-3}-alkoxy group, and

R_8 and R_9, which may be identical or different, each denote a hydrogen atom, a C_{1-3}-alkyl group optionally substituted by an phenyl or pyridinyl group or an amino group optionally substituted by one or two C_{1-3}-alkyl or C_{1-3}-alkyl-carbonyl groups,

while the unsubstituted or monosubstituted phenyl groups mentioned in the definition of the abovementioned groups, or the unsubstituted or monosubstituted phenyl moieties contained in these groups, as well as the abovementioned heteroaryl groups may additionally be substituted at a carbon atom in each case by a fluorine, chlorine or bromine atom, by a trifluoromethyl, C_{1-3}-alkyl, C_{1-3}-alkoxy or C_{1-3}-alkoxy-carbonyl group, unless otherwise stated,

and the compounds

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-chloro-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-sulphonyl)-phenyl]-acetamide,

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide and

2-(5-carbamidoyl-2-hydroxy-phenyl)-N-[3-methoxy-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

or a salt thereof.

3. A carboxylic acid amide of the formula I according to claim 1, wherein:

the groups R_1 to R_4, R_8 and R_9 are defined as in claim 1 or 2, but R_1 in the 4 position is bound to the phenyl group contained in formula I and

Ar denotes a phenyl group disubstituted by the groups R_5 and R_6, while

R_5 is bound in the 3 position if R_6 denotes a hydrogen atom, or is bound in the 5 position if R_6 assumes a meaning other than the hydrogen atom, and an amidino group optionally substituted by one or two C_{1-3}-alkyl groups, an amino-C_{1-3}-alkyl or C_{1-3}-alkylamino-C_{1-3}-alkyl group and

R_6 denotes a hydrogen atom or a trifluoromethyl, C_{1-3}-alkyl, hydroxy, C_{1-3}-alkoxy, carboxy-C_{1-3}-alkoxy or C_{1-4}-alkoxy-carbonyl-C_{1-3}-alkoxy group bound in the 2 position,

and the compounds

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-chloro-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide and

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

or a salt thereof.

4. A carboxylic acid amide of the formula I according to claim 1, wherein:

R_1 is bound in the 4 position of the phenyl group of formula I and denotes

a C_{5-7}-cycloalkyl-carbonyl group wherein the methylene group in the 3 or 4 position is replaced by an -NH group,

a phenylcarbonyl or pyridylcarbonyl group optionally substituted by a fluorine, chlorine or bromine atom or by a C_{1-3}-alkyl group,

a C_{1-3}-alkyl group terminally disubstituted by a phenyl and a hydroxy group wherein

the phenyl substituent may be monosubstituted by a C_{1-3}-alkyl or an amidino group or may be disubstituted by a C_{1-3}-alkyl and an amidino group,

a 5- to 7-membered cycloalkyleneimino-carbonyl group substituted by an amino-C_{1-3}-alkyl, C_{1-3}-alkylamino-C_{1-3}-alkyl, C_{1-4}-alkoxy-carbonyl-amino-C_{1-3}-alkyl, aminocarbonyl or C_{1-3}-alkylamino-carbonyl group,

or, if R_2 denotes a trifluoromethyl group and/or R_5 denotes an amino-C_{1-3}-alkyl group and/or R_6 denotes a carboxy-C_{1-3}-alkoxy or C_{1-4}-alkoxy-carbonyl-C_{1-3}-alkoxy group and/or at least one of the groups R_8 or R_9 assumes a meaning other than the hydrogen atom, an unsubstituted 5- to 7-membered cycloalkyleneimino-carbonyl or cycloalkyleneimino-sulphonyl group and

R_2 denotes a hydrogen atom or a substitutent bound in the 3 position of the phenyl group, selected from among fluorine, chlorine, bromine, C_{1-3}-alkyl, C_{1-3}-alkoxy and trifluoromethyl,

R_3 and R_4 each denote a hydrogen atom,

Ar denotes a phenyl group substituted by the groups R_5 and R_6 wherein

R_5 is bound in the 3 position if R_6 denotes a hydrogen atom, or is bound in the 5 position if R_6 assumes a meaning other than the hydrogen atom, and an amidino or amino-C_{1-3}-alkyl group and

R_6 denotes a hydrogen atom or a hydroxy, C_{1-3}-alkoxy, carboxy-C_{1-3}-alkoxy or C_{1-4}-alkoxy-carbonyl-C_{1-3}-alkoxy group bound in the 2 position, and

R_8 and R_9, which may be identical or different, each denote a hydrogen atom, a C_{1-3}-alkyl group optionally substituted by a phenyl, 4-(C_{1-3}-alkoxy-carbonyl)-phenyl or pyridinyl group or an amino group optionally substituted by one or two C_{1-3}-alkyl or C_{1-3}-alkyl-carbonyl groups,

and the compounds

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-chloro-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide and

2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

or a salt thereof.

5. A compound selected from the group consisting of:

(1) (L)-2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-methyl-4-(2-aminocarbonyl-pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

(2) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-{3-methyl-4-[2-(tert.butoxycarbonyl-aminomethyl)-piperidin-1-yl-carbonyl]-phenyl}-acetamide,

(3) 2-(5-aminomethyl-2-hydroxy-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

(4) 2-(3-carbamimidoyl-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-isobutyramide,

(5) 2-(5-carbamimidoyl-2-ethoxycarbonylmethyloxy-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

(6) 2-(5-carbamimidoyl-2-carboxymethyloxy-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

(7) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-methyl-4-(piperidin-3-yl-carbonyl)-phenyl]-acetamide,

(8) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-(3-methyl-4-benzoyl-phenyl)-acetamide,

(9) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-methyl-4-(1-hydroxy-1-phenyl-methyl)-phenyl]-acetamide,

(10) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-{4-[1-(3-carbamimidoyl-phenyl)-1-hydroxy-methyl]-3-methyl-phenyl}-acetamide,

(11) 2-(3-carbamidoyl-phenyl)-N-[3-methyl-4-(pyridin-3-yl-carbonyl)-phenyl]-isobutyramide,

(12) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-isobutyramide,

(13) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-chloro-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

(14) 2-(3-carbamimidoyl-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-2-amino-acetamide,

(15) 2-(3-carbamimidoyl-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-2-(acetylamino)-acetamide,

(16) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-sulphonyl)-phenyl]-acetamide,

(17) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-methyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-propionamide,

(18) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-trifluoromethyl-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

(19) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[4-(pyrrolidin-1-yl-carbonyl)-3-trifluoromethyl-phenyl]-propionamide,

(20) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

(21) 2-(5-carbamimidoyl-2-hydroxy-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-propionamide,

(22) 2-(5-carbamidoyl-2-hydroxy-phenyl)-N-[3-methoxy-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-acetamide,

(23) 2-(3-carbamimidoyl-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-3-phenyl-propionamide,

(24) 2-(3-carbamimidoyl-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-3-(pyridin-4-yl)-propionamide and

(25) 2-(3-carbamimidoyl-phenyl)-N-[3-bromo-4-(pyrrolidin-1-yl-carbonyl)-phenyl]-3-[4-(ethoxycarbonyl)-phenyl]-propionamide,

or a derivative thereof wherein at least one amidino group is substituted by a C_{1-6}-alkoxy-carbonyl or phenylcarbonyl,

or a salt thereof.

6. A physiologically acceptable salt of a compound according to claim 1, 2, 3, 4 or 5, with the exception of those compounds wherein Ar denotes a phenyl or naphthyl group substituted by the groups R_5, R_6 and R_7, and R_5 denotes a cyano group.

7. A pharmaceutical composition comprising a compound in accordance with claim 1, 2, 3 or 4, with the exception of those compounds wherein Ar denotes a phenyl or naphthyl group substituted by the groups R_5, R_6 and R_7 and R_5 denotes a cyano group, or a physiologically acceptable salt thereof, together with one or more inert carriers and/or diluents.

8. A method for treating thrombus formation which method comprises administering to a host in need of such treatment an antithrombotic amount of a compound in accordance with claim 1, 2, 3 or 4, with the exception of those compounds wherein Ar denotes a phenyl or naphthyl group substituted by the groups R_5, R_6 and R_7 and R_5 denotes a cyano group, or a physiologically acceptable salt thereof.